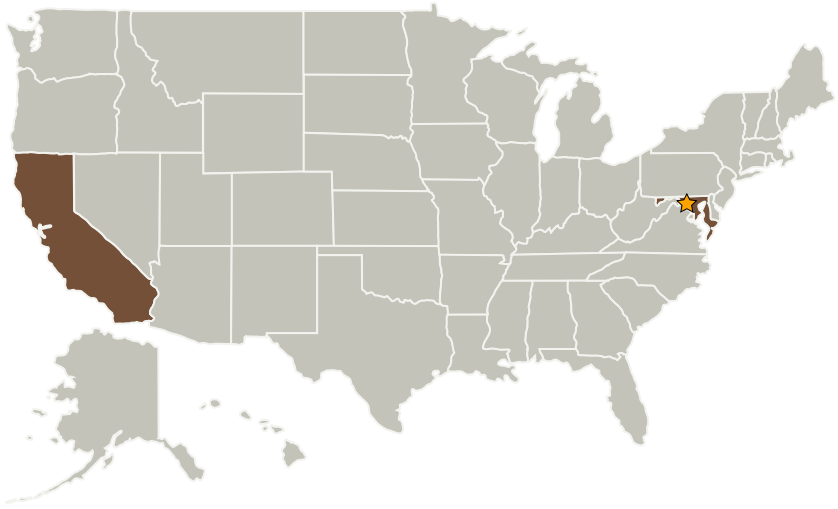
High-Performance, Radiation-Hard, 2-D, Near-Infrared, Avalanche Photodiode Arrays, Phase II

Completed Technology Project (2006 - 2008)

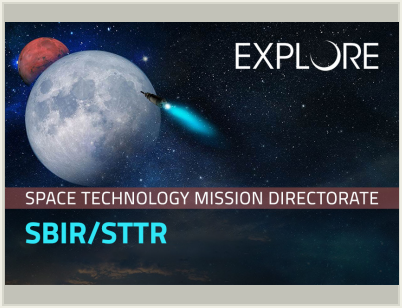
Project Introduction

AdTech Photonics, in collaboration with the Center for Advanced Studies in Photonics Research (CASPR) at UMBC, is pleased to submit this Phase II proposal entitled 'High-Performance, Radiation-Hard, 2-D, Near-Infrared, Avalanche Photodiode Arrays' in response to NASA STTR 2004 program solicitation topics: T4.01 Earth Science Sensors and Instruments and T4.02 Space Science Sensors and Instruments. Our goal is to develop high performance avalanche photodiodes (APDs) and arrays with high sensitivity in the 1.06 µm and the near-infrared 1-1.6 µm wavelength ranges, which will be used in various NASA applications including interplanetary free space communications, remote sensing, 3-D lidar atmospheric, terrain, and vegetation studies from airborne, UAV, balloon, and space-borne platforms. All these applications will benefit from the improved sensitivity, photon counting rate, and radiation hardness, which will result from this research project.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
AdTech Photonics, Inc.	Supporting Organization	Industry	California



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Maryland

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.1 Detector Development